



University Of Massachusetts Lowell

Sustainability Plan



Date: December 15, 2005
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This Sustainability Plan has been reviewed and approved by (Diana Prideaux-Brune, Vice Chancellor
Facilities) of (University of Massachusetts Lowell) on (December 30, 2005).

Signature of Agency Head or other Appropriate Designee

1. Agency Information, Impact Identification and Sustainability Team

1.1 Agency Description and Scope

UMass Lowell is a public university, one of the five campuses of the University of Massachusetts. The campus offers a broad array of programs to its 14,500 full- and part time, undergraduate and graduate students. With a special expertise in applied science and technology and a focus on regional economic and social development, the campus offers an outstanding and well-rounded education to its students, engages in substantial and wide-ranging research, and is deeply involved in the lifeblood of the community. Its colleges are Engineering, Management, Arts and Sciences-Sciences, Arts and Sciences-Humanities Continuing Studies & Corporate Education, School of Health and Environment, and the Graduate School of Education.

The campus is comprised of 65 buildings spread over 125 acres on both sides of the Merrimack River, and includes classroom and laboratory buildings, two libraries, a student center, two gymnasiums, recreation center two dining halls, a Center for the Performing Arts, an art gallery, and numerous residence halls. State-of-the-art laboratories include such special-interest facilities as the six Sound Recording Technology Program studios, an interactive video lab (one of three in the country) that enables nursing students to simulate medical emergencies, and a manufacturing lab where engineering and management students team up to produce microelectronic components. Nearly 1,000 faculty and staff support the university operations and programs.

The campus is located in the City of Lowell, 30 miles northwest of Boston, near the New Hampshire border. Lowell, which has a population of 103,000, was founded in the early 1800s as an industrial mill city that produced principally cotton goods. Today, the mills are being successfully converted to homes for high tech firms as well as condominiums and apartments. Lowell has enjoyed a steady stream of immigrant inflow for most of its history. The most recent immigrants -- Southeast Asians -- now comprise about 20 percent of the population.

1.2 Agency Impacts on the Environment and Human Health

The multiple programs and required services to educate students, provide housing, food, building infrastructure and operational services for the university community does require activities and use of natural resources that adversely effect the local and global environment. The importance of understanding and tracking our environmental impacts (see table below) on a monthly and annual bases, enables us to consider approaches that reduce our dependency on natural resources by implementing programs and services that allow us to be more energy efficient, economical and cognizant of the need to reduce, reuse, recycle. By partnering with state and federal agencies on energy saving programs and sustainable practices, the university continues to improve. Below is the 2005 data table of building energy used, vehicle fuel use, water use, Solid waste generated, and Recycling that comprised our Fiscal Year 2005 operations.,

Topic	FY05 Data	Unit*	Cost	Notes
Building Energy Use				
Electricity	30,339,572	KWh	\$ 2,585,076	All Buildings
Natural Gas	1,162.661	CCF	\$ 1,413,889	All Buildings
Fuel Oil #2	4,646	gallons	\$ 9,225	Hot water boiler for Fox Hall
Fuel Oil #4	N/A	barrels	\$	
Fuel Oil #6	24,280	barrels	\$ 959,241	Heating Plants
Biodiesel	N/A	Gallons	\$	e.g. B20
Renewables	N/A		\$	Type:
Other (e.g. Steam)	N/A		\$	
Vehicle Fuel Use				
Gasoline	29,724	gallons	\$ 59,724	All vehicles
Low Sulphur Diesel	N/A	gallons	\$	
Ultra low sulphur Diesel	N/A	gallons	\$	
Regular Diesel	1,100	gallons	\$2,750	For emergency generators
Biodiesel	N/A	gallons	\$	e.g. B20
CNG	N/A	gallons	\$	
Propane	N/A	gallons	\$	
Ethanol	N/A	gallons	\$	
Gasohol	N/A	gallons	\$	
Water Use				
Water	88,064	CCF	\$ 377,630	All Buildings
Sewer (if separate)	N/A		\$	

Solid Waste and Recycling (see Appendix I for common volume/weight conversions)					
Solid Waste total *	2,367		Tons	\$300,989	Based on 1 cubic yard =90 pounds loose trash; Compact material = 250 pounds. Also included in this total is our regulated waste disposal (biological, RCRA hazardous & non RCRA hazardous waste)
Recycling total *	603.57		Tons	\$80,936	
Recycling Programs	Y/N	Amount	Units	\$ Cost	Notes
Mixed Paper	Y	52.7	Tons	\$ 0.	No cost to recycle cellulose containing materials.
Cardboard	Y	6	tons	\$	Recycled
Mixed Cans & Bottles	Y	.42	Tons	Student & staff take empties	24 cans = 1pound Vending machines net 10,000 case yearly Estimated 20,000 cans are recycled
Toner Cartridges	Y	150	units	\$ 0.	No cost to recycle
Lawn and Yard Waste	Y	33.50	tons	\$ N/A	Grass & leaves composting program
Food Waste	N			\$	
Scrap Metal	Y	61.89	Tons	\$2,520	From Metal recycling 30 yd dumpsters
Other C&D Waste	Y	382.53	Tons	\$38,987	Construction and Demolition waste
White Goods	Y	5.15 *	Tons	\$ 0.	1 unit = 125 pounds. 83 units of refrigerators, air conditioners and ice makers. *Cost and weight included in Scrap metal total
Electronics/Computers	Y	21.55	Tons	\$3,241	Recycling of Electronics (IRN)
Batteries	Y	0.88	Tons	\$540	Lead & Alkaline
Cell Phones	N			\$	
Fluorescent Lamps	Y	1.76	Tons	\$3,029	Light tubes
Oil	Y	8.47	Tons	\$6,931	Motor pool, heating plants, hydraulic fluids
Glass	Y	2.1	Tons	\$4,794	Laboratory glassware and bottles
Ballasts	Y	2.42	Tons	\$2,061	Light Ballasts
Surplus Property	Y	31.35	Tons	\$18,833.00	Recycling of dormitory furniture
Other _____				\$	

1.3 Agency Operational Costs

A total cost for each individual environmental impact program is referenced in the above table.

The total annual financial cost in reference to the environmental impact table above is \$5,870,396.

1.4 Agency Sustainability Team Members

The university EOEa Sustainability Team (EST) members include:

Diana Prideaux-Brune, V.C. Facilities

Mark Lukitsch, Energy Manager

Rich Lemoine, Director Environmental Health and Safety

As a team, each member provides input, focus and consideration of sustainable practices and opportunities that can be integrated into the university daily operations and capital programs that support the university's quest to be a sustainable campus and environmental leader. The EST meets with an expanded Facilities Management Team every Friday to discuss ongoing programs, new initiatives and matters of interest and or new opportunities to be considered for continuous improvement.

There is presently two other committees that have been recognized that began meeting in December 2005 that will focus on Sustainable Practices and Work Place Quality. The efforts of these two committees will provide additional considerations, programs and alternatives to enhance sustainable practices at the University of Massachusetts Lowell.

2. Long-Term Goals/Vision

2.1 Long-Term Goals

The university is committed to sustainable practices through multiple initiatives, programs and established departments that provide focus and education in the university and outward to the general community. Being a resource, tool and agent for sustainable practices is the university's goal.

University departments that provide sustainability programs and assistance:

- * ***Toxic Use Reduction Institute (TURI)***
- * ***The Lowell Center for Sustainable Practices***
- * ***EMS Service Program***
- * ***University Environmental Management System Program***
- * ***EMS Consortium Services***
- * ***EMS Webware Software Program***

The University's Environmental Policy

University of Massachusetts Lowell Environmental Policy

As a public institution of higher education, University of Massachusetts Lowell is committed to being a model of environmental health and safety in our teaching, in our research, in our partnerships with the community, and in the management of our own

organization. The University challenges and empowers each employee and student to promote environmental leadership through our environmental principle, ***“Ride the CREST”***:

C: Continuous Improvement

R: Reduce, Reuse, Recycle

E: Environmental Compliance

S: Stewardship

T: Training and Education

Continuous Improvement

...To enhance the environmental management system through checking, corrective action and annual top management review to achieve improvements in overall environmental performance.

Reduce, Reuse, Recycle

...To use processes, practices, materials or products that avoid or reduce pollution, which may include process changes, efficient use of resources, material substitution and recycling.

Environmental Compliance

...To meet and where practical exceed all relevant current environmental laws and regulations.

Stewardship

...To empower employees and students to identify significant environmental aspects of our activities, products, and services, and to implement programs with targets and objectives that protect the health and safety of people and the ecosystem.

Training and Education

...To provide appropriate training to all employees and students to ensure competence and awareness of our environmental policies and procedures, the significant environmental impacts of their work or activities, their roles and responsibilities in support of our environmental management system, and the potential consequences of departure from specified procedures.

Environmental Policy End.

3. Short-term Actions and Priorities

3.1 Priority and Areas Goals

- A) Reduce energy consumption: Programs such as changing inefficient energy consuming lighting fixtures with “greener” alternatives has been recognized as an important consideration at the university. Partnering with local electric companies for rebate opportunities and applying for state grants (such as EOEA) have been very beneficial.
- B) The university is negotiating and preparing to purchase 13% of our total electricity demand as “Renewable Energy Certificates”. This 13% amount represents the total amount of electricity used and required to support all student housing (dorms) on campus.
- C) Expand the paper recycling program to include all fibrous cellulose materials. This program to be serviced by the custodial staff in conjunction with solid waste collection of offices and academic areas.

- D) Continued efforts in development and implementation of an EPA modeled Environmental Management System (EMS) on campus. The university has developed an EMS for the Olney (chemistry) Building.
- E) Reduction of hazardous material purchases and general usage on campus. Use of greener products including alternative non toxic chemical cleaners and academic greener chemical alternatives are a recognized important initiative. Education and supporting for “Reduction, Reuse and Recycling” of chemicals and solvents is the primary green initiative.

3.2 Agency Action Steps

SEE APPENDIX 4 Sustainability Work Plan (end of document)

4. Management Systems and Institutionalization

4.1 Integrating Environmental Impacts into Key Decision Points

Development and implementation of an EPA modeled EMS has provided a recognized means for the university to assess aspects and impacts of areas and determine significance. The importance of a new position titled Vice Chancellor for Facilities, Diana Prideaux-Brune, has served as a Steering Committee member of the EMS Committee since 2000 and is a primary link to assure that sustainable practices and considerations are employed in ongoing daily service programs, renovations and capital projects. Weekly meeting with Project Managers and the Facilities Management Team for input and decision considerations prior to execution of work is deemed essential for a successful program.

Additional sustainability resources from input and efforts of the “EOEA Sustainability Committee and the newly formed Sustainability Committee and Work Place Quality Committee is recognized.

Working closely with university departments (see below *) that provide sustainability programs and assistance to within the university and to the general community at large assures additional input and decision making for continuous improvement efforts.

- * Toxic Use Reduction Institute (TURI)
- * The Lowell Center for Sustainable Practices
- * EMS Service Program
- * University Environmental Management System Program
- * EMS Consortium Services
- * EMS Webware Software Program

4.2 Education and Training of Staff

The university through its EMS program development has trained staff by means of participation of EMS sustainability committees, university newspaper briefs, and electronic communications. A newly formed (December 2005) Sustainability Committee and Work Place Quality Committee will focus on this area and make recommendations to enhance efforts in this area.

4.3 Management Systems

[The university has developed an EPA modeled EMS program for the Olney (chemistry) Building and has developed and commercialized web based software (EMSWebware.com) that streamlines the EMS process.

5. Tracking Progress and Program/Plan Review

5.1 Agency Tracking and Reporting Form

The process that the university has implemented to complete the submittal of the annual Agency Tracking and Reporting form on progress will be consistent with submittals currently to EOEA. The university Environmental Health and Safety Department will be responsible to gather the data assess information and timely submit the information to the State Sustainability Council.

5.2 Continuous Improvement

- *the process by which sustainability efforts will be evaluated and monitored to ensure they are working and achieving initial goals*

The process by which sustainability efforts will be evaluated and monitored will be similar to the current EMS process. Targets and objects will be defined and oversight through implementation will be recognized by the responsible staff member.

- *the process by which feedback will be encouraged and incorporated into future planning*

The understood recognition and importance of strong communications by all committees focused on sustainability initiatives in conjunction with utilizing available university media communications for input and feedback is recognized.

- *how this sustainability plan will be reviewed and altered (if necessary) and who will be responsible for overseeing this process]*

This university sustainability plan is a product of continuous improvement. As a living document it will be reviewed by the EOEA Sustainability Committee on an annual basis (the month following the submittal of the annual report) and revised as necessary to reflect the sustainable initiatives and environment at the university.

End of Document.

See Appendix #4 (next Page) Agency Sustainability Workplan Worksheet.

Appendix 4 - Agency Sustainability Workplan Worksheet

For Use in Section 3 of the *Agency Plan Template* “Short Term Actions and Priorities” and should be submitted as part of the agency plan.

This worksheet is intended to help agencies develop an action plan to help identify the key sustainable activities the agency wants to address, as well as identify the key staff necessary to ensure program success. The information provided here is for sample purposes only

Sustainable Goal	Benefits	Specific Tasks	Responsible Staff	Timeline
<i>e.g. Increase Mixed Paper Recycling by 10% per year for five years</i>	<ul style="list-style-type: none"> <i>Solid waste reduction</i> <i>Cost savings</i> 	<ul style="list-style-type: none"> <i>Identify potential vendors through state contract that are the most cost-effective</i> <i>Award vendor</i> <i>Publicize new program to staff</i> <i>Hand out new recycling bins</i> <i>Begin recycling program</i> 	<ul style="list-style-type: none"> <i>Karen Smith, Purchasing</i> <i>Same</i> <i>John Johnson, Commissioner</i> <i>Steve Smith, Facilities</i> <i>Sustainability Team</i> 	<ul style="list-style-type: none"> <i>January 1, 2004</i> <i>February 1, 2003</i> <i>February 15, 2003</i> <i>February 25, 2003</i> <i>March 1, 2003</i>
Reduce energy consumption. Partner with electrical companies and state grant opportunities to replace light fixtures on campus	Energy conservation, reduction for need of natural resources and cost savings.	Electric Companies, EOE, EPA.	Mark Lukitsch, Energy Manager	FY-05 Grant approved by EOE for lighting FY-06 six applications for request of grant funding to EOE
Purchase 13% of total electrical demand as “Renewable Energy Certificates”	Greener energy source and sustainable environmental alternative	Electric Company	Mark Lukitsch, Energy Manager	FY-07
Expand the paper recycling program to include all fibrous cellulose materials. To be serviced by custodial staff. Increase tonnage by 10% during Fy-07.	Solid waste reduction, cost benefit, recycling program enhancement and sustainable practice.	Cassella Services	Tom Miliano, Director of Facility Services	October 2005 begin

Continue efforts in development of an EMS for Olney Building	Improved efficiency, communications, enhance environmental compliance programs and cost savings,	Complete internal audit of Olney Building and begin new cycle.	Rich Lemoine, Director of EHS	*January 2006 audit process * Feb call EMS team together and begin discussions for next cycle.
Reduction of haz material purchases and use of more greener products	Reduction of haz material waste, safety for students and employees, cost considerations.	Distillation of solvents: Review vendor green products for custodians Use greener chemicals in replacement of haz material chemicals when appropriate.	Rich Lemoine, Director of EHS	FY-06 formalize program FY-07 implement FY-08

